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ABSTRACT

Noting that the identification of exceptional potential in young children must become a better informed process in order to provide appropriate schooling to develop that potential, the purpose of this study was to extend knowledge of the many ways in which emerging gifted ability in children from diverse backgrounds may show itself in home and school settings. The specific school setting for the group of children in this study was a specialized summer program for bright 3- and 4-year-olds conducted by the Institute for the Gifted and Talented at a large southwestern university. Data were obtained for 16 children from primary and secondary sources. The focus of observations of gifted potential in these children was a set of general variables which included: content or symbol systems preferences (print, number, musical, geometric, spatial); modality consistencies in information gathering; pace of exploration; play preferences; and peer and adult interactions. The data on six children is presented in detail. Observed behaviors are described according to the child's epistemological orientation. This includes exceptional learning, application, generating, and focus, illustrated by examples in context and related to Gibson's hallmarks of human behavior--agency, prospectivity, flexibility, communicative creativity, and retrospectivity. The observations in this study appeared to support a number of important premises concerning gifted potential in children. (Contains 29 references.) (BAC)

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Gifted Potential in Young Children from Diverse Backgrounds: What Does It Look Like?

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ABSTRACT

Much attention has been drawn to dismal records of identification of giftedness and talent potential among culturally different and economically disadvantaged children. Identification of exceptional potential in young children must become a better informed process if we are to provide appropriate schooling to develop that potential.

The purpose of this study has been to extend knowledge about the many ways emerging giftedness in young children from diverse backgrounds may be observed in home and school settings, and in the particular setting of a specialized summer program for bright 3- and 4- year-olds. Emergence of intelligence and extraordinary competence can be documented in content and symbol system preferences, modality consistencies in information gathering, exploration pace, play preferences, and peer and adult interactions. Observed behaviors are described according to the child's epistemological orientation : exceptional learning, application, generating, and focus, illustrated by examples in context, and related to Gibson's human behavior hallmarks.

Gifted Potential in Young Children from Diverse Backgrounds: What Does it Look Like?

We continue to be dismayed by the particularly dismal record of success in identification of giftedness and gifted potential among children from culturally diverse and economically disadvantaged backgrounds. It is unreasonable to assume that gifted potential does not exist or can not be identified in these populations. We also know that talent will not be developed without support and training, as has so clearly been pointed out in "Talented Teenagers. The Roots of Success and Failure" (Csikszentmihalyi, Rathunde & Whalen, 1993) when these authors describe the absolutely essential contribution of early training to development of talent. It has become quite evident that the identification of exceptional potential in young children must become a better informed process if we are to respond with early nurturing and supportive schooling appropriate to the talent needs of these children.

However, providing the appropriate support for such children depends on knowing how diverse environments influence early manifestations of ability. Toward that end we have conducted studies of exceptional abilities in preschoolers as reflected through their emerging cognitive styles (Haensly, 1992, 1993), as affected by familial context and siblings (Haensly, 1993) and Chinese familial expectations (Bagby & Haensly, 1994), as expressed through functional behavior in Head Start children (Haensly, Ash & Wehrly, 1992), and as variously manifested in siblings (Haensly, 1994). Recent reports describing universal primary identifiers of exceptional potential in young, culturally different and economically disadvantaged children (Shaklee & Rohrer, 1991), as reported by Coleman (1994), provide a promising lead for identification that is genuinely related to sound, theoretical views of intelligence and cognitive competence.

For some time in the history of the study of child development, many researchers and educators have held that there is a normative sequence to the optimal emergence of intelligence, a sequence generalizable to all children. In this proposed sequence the bits and pieces of any given skill or component of cognitive behavior ideally assemble in a predictable pattern, resulting in a predictable composite of those intelligent behaviors necessary for optimal performance. Thus, most assessment became a nomothetic process, with idiographic assessment reserved for personality assessment (e.g., Allport, 1937; Mischel, 1979) or for diagnosis of disturbing incidences of irregularity in ability and performance. These latter irregularities have most often been interpreted as abnormal or pathological. While perceiving giftedness as abnormal development might fit our old

paradigm regarding giftedness, this view does little to support productive understanding of how to recognize and nurture exceptional potential, either in ordinary settings or in specially designed settings.

The purpose of the study of giftedness in young children to be reported here has been to apply an idiographic perspective in order to focus on the diversity of talent and its origins, the accompanying manifestations and potential outcomes. The intent is to extend our knowledge about the multitude of ways in which **emerging gifted ability, or, gifted potential,** in children from diverse backgrounds may show itself in home and school settings. The specific school setting for this group of children has been a specialized summer program for bright 3- and 4- year-olds. School setting in this case then is one that is oriented to a curriculum that is individually, developmentally appropriate with a child-centered focus where exploration, discovery and play are the centerpieces of instructional planning.

The focus of our observations of gifted potential in the children of this study has been a set of general variables that are present in any child's experience. These include: the child's preferences exhibited toward different contents or symbol systems (print, number, musical, geometric, spatial); differing representational competencies (see Copple, Sigel & Saunders, 1979, Sigel, 1991); individual consistencies in modality of information gathering and in expression of ideas, pace of exploration and response, environmental preferences for play, and type of interactions with adults and peers (see especially Werner, 1995). Observations include specific descriptions of behaviors, illustrated by examples of the behavior in context.

A second level of our organization of these observations has been to fit the observed preferences and consistencies into four categories that emerge in individual learners, ones that might be considered as that child's orientation and epistemological origin: learners, doers, generators, and an orientation focus and intensity. Shaklee's (1993) terminology for primary identifiers of exceptional potential was used to label these categories: exceptional learning capability, exceptional application of knowledge, exceptional generating of knowledge, and exceptional direction or focus.

Rationale

Reassessment of what constitutes intelligence (Sternberg, 1977; Gardner, 1983; and others) has drastically altered our perceptions of intelligence as a phenomenon singularly expressed in all individuals. Our sights have been directed by a number of researchers (Brodzinsky,1985; Neimark, 1985; Resnick, 1991; Rogoff, 1990; White,

1983) to focus on the cognitive competence exhibited in variations in observed performance. Rather than signifying competence as an expected level or quality of performance on tasks designed to elicit a singular, previously determined "correct" response, researchers have begun to look at individuality in competence, experience, and observed performance. The idea that 'normal' developmental change could differ among individual children has previously been explored through looking at differing adaptation to ecological variants (Sroufe, Egeland & Kreutzer, 1990) and examining the role of supportive contexts in learning and development (Brown & Reeve, 1987). Bronfenbrenner (1986) has added yet another piece to the multiple possibilities for 'normal' development by focusing on the ecological nature of developing intelligence, the expectations set in motion by that ecology, and the subsequent cognitive competencies and differing performances by children from diverse cultural and economic backgrounds.

One of the most insightful discussions regarding the way psychologists do, *versus how they might* view the human individual and the mental processes and actions performed as an outcome of the directive force of the mental processes, has been that of Eleanor Gibson (1994) in her keynote to the American Psychological Society's 1994 Annual Conference. Gibson suggests that psychologists must set aside three dichotomies that have governed their thinking since the field's emergence. These are dualism, reductionism and the nature-nurture controversy. Dualism separates consideration of the mind from that of the mechanisms for controlling human body functions. Reductionism focuses on uncovering definitive causal relationships encompassing multiple levels of functions as if the causative sequences had a distinct existence apart from "the intricate intertwining of perceiving and acting in the adaptive life of a human animal" (Gibson, 1994, p.71) and apart from the convoluting opportunities and constraints of diverse environments. The third controversy, the nature-nurture dichotomy, is one which Anastasi urged us to set aside as superfluous as long ago as her 1950 Presidential address to the American Psychological Association Convention. Gibson summarizes her own position by stating "It is the functioning (both cognitive and active) of the whole animal in the environment in which it evolved that has to concern us" (Gibson, 1994, p. 71) if psychology is to have a future.

Applying this interactionist perspective in our own studies has opened up a variety of possibilities for seeing the productivity of the variations between individual children in direction and outcomes of their developmental sequences. For example, in describing a specific 3-year-old's early, pronounced affinity or exceptional ability for understanding content that is number-oriented, we can not overlook the contribution of that child's environment in a familial setting rich in number consideration and fascination because the

child's parents are both highly educated mathematicians. Or, in the cases of the child who has consistently focused in his early play on arrangement of geometric shapes into patterns such as seen in the Raven's matrices, or the one whose play repeatedly turns to constructions of complex Lego configurations, we can see how parental provision of high-stimulus, contemporary, construction-type play materials has played an important role in these children's focus. Focus, practice, and immersion in a particular home setting by both child and family members, or by a child in a preschool setting, are undoubtedly affected by the specific type of environmental opportunity unique to that child, as we have long known from, for example, familial studies of musical genius. Such opportunity at least shapes, if not determines, long-lasting links between the child and a particular content. In addition, we propose that focus, practice, and immersion create links between that available content and the overarching, emerging cognitive practices constructed by the developing child, practices such as classification, perceptual attention, subsequent focus, and goal-directed, problem-solving sequences.

Interpretation of our findings is grounded in a somewhat eclectic manner in several emerging theories. The theories we have seen as relevant are ones that seem to support our premise that differing cognitive abilities and gifted potential can be recognized as they emerge in diverse settings, but that they will be differentially shaped by diverse parental and teacher expectations and provisions. Further, these emerging abilities will be shaped and directed by the individual child's affinity for particular contents and modes of response. For example, Copple, et al. (1979) have set the stage for a meaningful examination of the incidences and outcomes of the differing representational competencies among individual children. These representational competencies are exhibited when individual children typically select one of the differing symbol systems intrinsic to a specific domain---mathematical, linguistic, musical, spatial, mechanical, and so forth---to express their ideas.. Gardner's theory of multiple intelligences (1983) and Bronfenbrenner's (1986) ecological interactionist emphasis have likewise been particularly relevant to our premises and interpretation.

Additionally, Gibson's hallmarks of human behavior (Gibson, 1994)---agency, prospectivity, flexibility, communicative creativity, and retrospectivity---help us maintain a universal perspective regarding human development as seen in these children. The contribution of the type of information presented in this study to the understanding of intelligence as it relates to early identification and nurturance of giftedness is further elucidated using Shaklee's primary identifiers of exceptional potential (Shaklee, 1993), identifiers we referred to earlier as epistemological origins. Shaklee categorized observable behaviors and incidents thus: (a) exceptional learning capability---quick learning, memory,

immediate advanced understanding; (b) exceptional use of knowledge presented or obtained---problem solving, advanced reasoning or demand for reasons, fluent use of a particular symbol system; (c) exceptional generating of knowledge or rearrangement of available information---nonconformity to current information or skill presentation, self-expressiveness within a symbol system, curiosity about causes and alternative arrangements; and (d) exceptional motivation or internal direction and zest applied to participation in any of the previous three orientations to learning through long attention span, high level of inquiry and reflection, intense desire to know, perfectionism, initiative and self-direction, and leadership of others in activities.

Methodology

Since 1985, a 4-week summer program for 3- and 4-year old children advanced for age in their intellectual ability has been conducted annually by the Institute for the Gifted and Talented at a large southwestern university. Extensive data on the 16 - 22 children identified each year for that program have been accumulated from the screening or identification procedures (including intelligence tests, extensive parent questionnaire responses, and child interviews) and from observations made during the program by teachers and researchers. The end-of-program reports to parents on program accomplishments by their children, along with some follow-up contacts have added to this data base. In the identification process for this program (described in greater detail in Haensly, 1992; Haensly, et al., 1992), careful attention is paid to both details and patterns in the child's responses during the administration of (a) the Raven's Colored Progressive Matrices (RCPM), (b) an academic skills readiness test (the Revised Peabody Individual Achievement Test, PIAT-R), (c) sometimes the Kaufman Brief Intelligence Test (K-BIT), and (d) the dialogue of the assessment session. The actual responses and response styles to the RCPM items can diagnose specific progress through the Piagetian preoperational stage; or, a long-standing record of preference for stimuli with any of the instruments or observations, such as alphabet symbols, geometric shapes, or numbers, may explain a current advanced representational competency; or, particular personal characteristics such as independence, curiosity, assertiveness or aggressiveness are likely to reflect this child's facile command of his or her environment. The details identified are cognitive, behavioral, and social or attitudinal. The children are administered assessment instruments only prior to their first entry into the program; thus, children who were enrolled at 3 years of age were not usually tested prior to their second year in the program.

Once the child was included in the Minds Alive* (MA) experience, data from multiple sources added to our knowledge of the child's competencies and directional focus.

These included further parent observations, and observation and assessment by teachers regarding the children's cognitive and social responses to a daily continuum of multidisciplinary tasks, from structured to non structured, along with identification of recurring patterns in the cognitive and social behaviors of the children across all of these settings.

During the 1994 summer session of MA*, in addition to the regular practice of teachers keeping a daily log of the activities of the four to five children for whom they as practicum teachers were specifically responsible, the second author engaged in a concentrated observation of each of the children as they engaged in each of several different broad types of activities. Thus, attempts were made to capture each child's typical and/or exceptional responses to individual exploration time, one on one time with a teacher, small group structured and unstructured activities with a teacher, semi-directed creative play, the playground, or the free choice grouping as children chose to play in any one of the available centers from the home center to the water table to the large blocks. The intent was to gather at least one observation from as many of the various settings as possible or appropriate for each child, recording specific behaviors, inferred attitudes, accompanying social interactions, and accomplishments and frustrations. Behavioral descriptions were recorded, along with anecdotes or illustrations for external verification, and classified under the most relevant of the four primary indicator categories of emerging ability described previously.

Data were also extracted from a parent questionnaire completed for each child and set into the appropriate primary indicator categories, along with extractions from the assessment records and the first author's personal interactions with the child during the assessment session. Wherever available information permitted, content preferences, information gathering modality preferences, problem solving style (tempo, verbal/ kinesthetic, sensory/ intuitive, etc.), peer communication style and adult interaction style were extracted from the records. Examples of the type of data and comparisons available that are being accumulated in this project are conveyed in the following report of a representative sample of the cases studied. In each case, children were selected for this report who demonstrated some aspect of the ecological and environmental influences we propose will affect the different types and degrees of gifted development likely to occur between individual children.

Results

Data from all of the sources just described were obtained for 16 of the 20 children between the ages of 3 and early 5 years who were enrolled in the 1994 program, 11 girls and 6 boys. Of these, 14 were from middle class Anglo families (with 5 financial need

scholarships) and 2 were from one Chinese family whose children had also been in the 1993 program. Of the 14, 2 of the girls had mothers who led such busy professional lives they did not find time to complete the parent questionnaire, yet did make time to attend parent seminars, the exit conference and make daily inquiries about their children's accomplishments and adaptation to the activities. Two Black children, early 5-year-olds, one boy and one girl, were nominated by their teachers as brighter than average among their peers in the Head Start program, believing they would benefit from this summer program. As per our policy for these children, we honored the teacher recommendations and did not request screening data prior to the program in order to avoid generating negative expectations on the part of their families. In similar cases in previous years we have sometimes obtained assessment data during the course of the program when parents have been particularly interested and cooperative, although this becomes a potentially discriminatory distraction and loss of valuable program time. We decided their particular cases warranted against attempting to assess for these two children. One Hispanic 3-year-old boy was admitted too late to obtain assessment data, but came with strong recommendations based on observation and family knowledge by one of the MA* teachers. Observational data by the researchers and teacher observations from the Home Visit prior to the program and in the activities of the program were obtained on all of the children.

One Child's Emerging Abilities and Consistencies

The Assessment Session. KW is from an advantaged middle class Anglo/Hawaiian origin, whose mother works in a specialized technical support field at the university and whose father is in business. KW, at age 4 years 4 months arrived for the session seeming to exude energy from her lively facial expression and sparkling eyes to her quick movements. She immediately seemed to take charge, taking the lead in the conversation with clear and articulate speech, yet seemed relaxed as we engaged in the various tasks, to which she carefully attended. She was cooperative, yet assertive and decisive in her responses. She immediately understood the procedure for the RCPM and performed about 1 2/3 years beyond her age level expectation, with a style that included such close attention to details that she never needed urging to examine all options before selecting as do many children of this age. On the PIAT-R Information subtest, her responses were clearly stated and frequently elaborated; for example, she compared the ocean to a lake by saying, "An ocean has waves, belongs to a beach; they are bigger than lakes and they always bring sea shells up on to the beach; Mommy got some and put them into a bowl." Her responses throughout the session on structured tasks and casual conversation indicated that she has

been building her knowledge base by using strong observational skills, good memory, and exceptionally effective mental processing of incoming information for her age.

Because things were moving along so smoothly, the Kaufman Brief Intelligence Test was administered; while her performance on the nonverbal Matrices subtest was only at the average to above average level, her expressed vocabulary fell between the 98th and 99th percentile for her age. When she didn't know the exact label for the displayed picture, she always generated a descriptor, sometimes immediately meaningful (such as "a measuring thing" for a ruler) and sometimes somewhat obtuse (such as "oil thing, emergencies, a fire" for a fire extinguisher). Throughout the session, she demonstrated a strong, delightful sense of self in her interactions with this author and later with her mother. Her problem solving style is quick though reflective, and heavily verbal, while still paying great attention to visual details.

Preschool Setting Observations. Observations of KW found that she is an advanced user of the language symbol system, consistently using a rich and creative vocabulary; after a session on insects, she said "I am a walking bugstick." She showed exceptional learner capability in the use of her memory, remembering the names of all kinds of insects during the session, both those provided and some remembered from elsewhere. As well, her advanced understanding of a specific area of knowledge reflected exceptional learner capability; when she learned about the caterpillar and cocoon from the demonstration materials, she figured out on her own the cycle of the silkworm so effectively that she explained it all to the others while they examined the silkworms. An example of the way she generates knowledge exceptionally well, not conforming to typical ways of thinking, occurred when she made an ant with play dough, putting many toothpicks into the shaped playdough. When another child said that was "silly", she replied, "I can pick it as many times as I want", but then adapted for the negative comment by telling another that she had "made a cactus." KW shows a high level of inquiry and reflection, consistently seen as she intently examined everything around her; when she heard about the caterpillar's metamorphosis, she was the one child who asked, "Why did the caterpillar take his skin off?"

Further observations of KW showed that she uses very "sharp eyes" to obtain facts and assess situations. Her vocabulary is very rich and logical, full of questions, imagination, and creativity. She never seemed to want to conform to the class's activities, preferring to follow her own directions, often leaving her alone and thus creating some interpersonal problems between teachers and the other children; at this she often seemed stubborn and insistent. Yet she expressed her thoughts easily and correctly, and often seemed to prefer conversations with particular adults. Her content and modality

preferences in the preschool setting were the water table, painting, the blocks, and the insects and animals studied. As the observer concluded, "When she talks or moves, it seems that powerful energy comes out of her."

Parent Questionnaire Information. KW's parents described her as constantly creating stories which start from an idea, a word, a sound, or an event, and then progress to a conclusion. Although the conclusions may sometimes have appeared unusual, the sequence of events almost always followed a logical pattern. She seems to enjoy self-expression of ideas, feelings, beliefs. For example, while talking about counting and numbers, she invented a game where one player holds up a combination of fingers and the other players say how many fingers are held up. She invented another game involving counting bites during a meal. She was quite insistent about the rules for her games. Note that these are events being recalled by the parent from KW's first three years of life.

A Subtle Contrast in Family Environments and Expectations

To Be Black, Economically at Risk, and With A Single Parent. SH was nominated for one of the scholarships of the program by her Head Start teacher, who reported that this little girl was almost always the first to understand new ideas and tasks, eagerly participated in activities, and was quite beyond her peers in her verbal abilities. Her mother was very cooperative in bringing SH to the program on a regular basis, although she did not choose to come to the individual exit parent conference, nor to confer on a daily basis with the teachers as many of our previous scholarship parents have done. It was not possible to gather assessment information on SH without isolating her during her time at the preschool, which has not been our policy because the summer session is so short and it would be likely to create additional problems for the child of accommodation to this setting.

Observation of SH at the preschool setting found her often to be observing quietly in the background, always cooperative with the adults and with her peers, yet distant from them. She seemed very calm and stable in her responses and she liked to sit close to the teacher during circle time and whenever else opportunity presented itself. In the circle sessions, she appeared alertly attentive, and her responses softly given indicated that she did indeed understand new concepts quickly. Evidence of an active memory came in many ways, but especially in her seeming delight in reciting many complex nursery rhymes.

She often played in the home center or in the sandbox, but usually alone. In the home center, she played with the dolls, hugging them and kissing them calmly, seeming to reflect a sense of comfort in her surroundings. At the sandbox, alone again, she would put sand in the cup, pouring it out carefully and seeming to observe the results. It did not seem as if her play was aimless or just passing time, as she seemed to be quite observant and

orderly as if experimenting with what she was doing. For example, one day she found a sea shell at the sand table, carefully examined it from all angles, then calmly took it to the water table where she explored its possibilities further by pouring water in it and through it repeatedly. When another child observed the possibilities in this element of play and found another sea shell with which to engage the water, SH moved on to other activities. As the observer reflected about her total impression of SH, "She seems to follow her feelings and inner desires and seems to enjoy them quietly and unobtrusively."

From this limited evidence, it appears that while SH's environment has probably not been highly enriched in our middle class sense of material goods it appears to have been reassuringly stable for her. Development of SH's potential may be longer in coming than KW's, but the reassuring calmness with intent focus on the world around her, as if awaiting her turn, may be quite productive because teachers will be drawn to her calm joy and her willingness to interact.

Another Side of the Coin. DU, on the other hand, generates much less optimism regarding his future possibilities unless special adults who care greatly about his future come into his life. Black, with a single parent who is angrily frustrated with the world and her many children in a quite disadvantaged home setting, DU was observed as receiving little approval and much disapproval for his existence. In this outwardly dysfunctional home setting, his mother was observed during the teacher's home visit to treat him roughly, yelling at him as if it was a common occurrence. There was little physical evidence of a child-centered environment in the home and the children were told in no uncertain terms to play outside in the area around the home, at least during the time the teachers were there to visit him and his mother. DU had also been nominated by his Head Start teacher because of unusual brightness among his peers, and after a long period of adjustment, a willingness to work with his teacher. Yet it remained up to SH's mother to bring him to the preschool as his own mother did not have transportation and seemed little interested in requesting assistance from other relatives who might help in this situation. In fact, DU did not appear during the last week of the program, apparently having gone for a time to his father's residence.

Yet DU showed a high level of memory and intellect. He too played alone and, not surprisingly, did not seem comfortable with the other children despite their acceptance of him and teachers' attempts to create as normal and accepting an environment as possible. He learned new information quickly and often without seeming to pay attention. During the caterpillar lesson, he seemed to be watching activity outside the classroom, with "his mind seeming to wander around some other place than his body was" as the observer noted. Yet, when none of the other children could answer the teacher's question about the

order of the cycle that butterflies go through and the term for the caterpillar's home, he surprisingly opened his lips and answered without any outward emotional sign, "crysallis!" He seemed to spend much of his energy testing reactions to his activities by peers and by the teachers. He often seemed sad, angry, and rebellious, in turn. He took great pleasure in the work bench, hammering nails and sawing wood with great concentration and apparent great satisfaction. His emotional needs seem to overshadow and impede his intellectual growth, yet his mind seems ready to grasp new ideas when he lets himself do this. He often was moody, rude, calling names when angry, yet he could be sweetly cooperative on one to one occasions with favored teachers. Development of each of these characteristic behaviors into gifted potential seems destined to await the attention and nurturance of a particularly responsive adult, teacher or friend, as Werner (1995) so vividly describes.

Exceptional Learners, Exceptional Familial Settings

A Chinese Family in America. In stark contrast to the case of DU is the situation for 4-yr old BL (5+ years at the time of this year's observations) and his younger brother, AL. The highly educated father and mother of this Chinese family are so devoted to the happiness and welfare of their children, to their education intellectually and morally, that they look for every opportunity to further those goals. Intellectual opportunities are strongly associated with creative play and with attention to the ways to become a "good adult". Aesop's Fables are often for them a first reading material, because "they teach us ways to be good people, caring for others and being responsible for ourselves", said his mother. Rather than having each brother have their own bedroom, one room has been set aside as a permanent place for all their creative endeavors and play. A recycle box provides a wealth of materials for the inventiveness of these children as they combine sophisticated Legos with paper towel rolls and clips to make complicated robots; or puzzles which they improvise after setting aside fancier commercial ones. It is significant that the father, although a computer expert and professor in computer science, has not pushed this technology at the children. He has expressed interest in providing this technology for them, but has specifically stated preference for their initial education to arise from creative explorations and inventions with whatever is available, from nondescript materials, to purchased, attractive complex games and puzzles appropriate for age, yet challenging and open-ended in nature.

Without iterating the many instances of observation on both of these children in all of the categories of epistemological origins, a few descriptors will suffice to contrast the future possibilities of BL and AL with that of DU. BL, at age 4 years 3 months scored at

the 8 year level on the RCPM; AL, the younger brother, scored 1 1/2 years beyond his 3 year 4 month age on the RCPM at time of testing, but, at the 97th percentile for age on the K-BIT matrices subtest (similar in symbol manipulation to the RCPM, though not as precisely logical). At this same testing session, AL scored at the 91st percentile on the K-BIT Vocabulary subtest; for a portion of this subtest, his mother was requested to translate as AL began to identify the pictures in Chinese, still with the same confidence he had identified in English the earlier items. BL, at 2 years of age, had already recognized the 26 English alphabet letters and recognized around 100 words in Chinese. He learned language very quickly and seems fascinated with words. For example, during this summer's program, after absorbing a teacher-provided definition of the word "mystery", he went to the art table and drew a series of "mystery pictures". His language is very logical and correct, sometimes very creative, as in making a new word during play, "a rainbow brontosaurus".

The younger brother AL is also an exceptional generator, that is, highly creative in his play. At Minds Alive*, he often produced sounds to accompany his play and found much humor in stories and in his play, frequently giggling unselfconsciously at some turn of events or materials produced by his actions or those of others. One day he made up a story line by laughingly beginning, "Caterpillar likes worms, but worms always sneeze. . " and continued playing with this theme. He described one picture he drew as telling a story in Chinese, with the picture of a killer whale as a character. Whenever events in the environment caught his attention, he became engrossed in following them, exploring enthusiastically. Observing a tarantula spider in a cage that a teacher had brought, he heard the cricket in the cage and remained, entranced to observe the cricket's demise, although asking why the spider needed to do that specific act. After learning that insects have three parts to their body, he spontaneously made an inference in choosing to examine the ants with a magnifying glass to see whether or not the ants had three parts to their bodies.

BL often draws the earth, rockets, and dinosaurs, in pictures that are very imaginative and yet real, using very bright colors. His logic is fascinating; the day after a discussion involving the sun's and earth's rotation, he came to class and said, as if he had been pondering the idea since the previous day, "If the sun is shining on us [here], then it must be dark in China." He seems to find his own way to explore concepts; one day on the playground, he spent the entire time pretending the large treehouse tree was a sleeping giant. Another day after he had read "Caps for Sale" at home (these children and their mother weekly bring home a huge stack of books from the library), he made a Caps for Sale sign with two pieces of wood he nailed together, painted the words on the sign with

no help, and then went around selling caps to the other children and to the adults who were willing to "imagine" along with him.

Both AL and BL were observed throughout the program to act in ways that reflected not one but all of the categories of exceptional epistemologist---learner, user of knowledge, generator, and focused in their attention to whatever complexity they encountered.

Another Facet of Competence and Family Influence. AS is the younger sister of a previous MA* participant brother who was identified as 4 years beyond his chronological age expectation on the Raven's CPM at 3 years of age. While AS, by contrast, at 3 years of age, only performed 1 year beyond her chronological age expectation on the Raven's CPM, her preschool readiness skills were 2 years advanced for age on the PIAT Information subtest, with precise ability to identify also the differences in alphanumeric symbols. From the parent questionnaire, her estimated ability was 3 years beyond age peers, especially evidenced in sensitive and detailed memory and early, rich language usage.

On response to the PIAT information subtest, AS almost always generated a flow of description about an event that she seemed to feel relevant to the information question; her strategy was to reflect a few minutes, then construct connections between ideas and events, conveying their complexity. It often seemed she took an obtuse route, yet would arrive at an answer that satisfied her. For example, in response to a question on why baseball players wear helmets, she first insisted that she doesn't "play baseball because I'm a girl! So that's why I wouldn't have a baseball helmet on my head!" But then, after a pause, she spontaneously added "they don't want to have their heads hurt." Even at age three her explanations were detailed, articulate and fluent, preceded by intent listening and, we infer because of the pauses, reflecting, before formulating her response.

What became evident about AS last year and in this year's program was her attention to the emotional states and needs of peers and adults. In her response to those needs she was able to describe them specifically, accurately and sensitively, and then to attempt to formulate actions that might help the other individual In creative play one day as the children had become alligators and other children pretended to be scared, she was heard to remark, "You don't need to be scared. We are all good alligators. These are my kids and I am the mother." She often took the role of caregiver, pretending on different occasions that she was a mother, a nurse, doctor. An outstanding example of this evidence of interpersonal intelligence occurred in a conversation she had one day with a teacher in which she described how sad her brother was because a deer on their land that he had somewhat adopted had been accidentally killed. She remarked how she had tried to cheer

him up by giving him a favored possession of hers; since that didn't restore his happiness, she was wondering what she might do next for him. Extended reflection was evident throughout AS's interactions with people and materials, both at home and in the preschool setting.

AS's parents are soft spoken adults, intently concerned with social issues. When her father, a minister of a small congregation found a particular community issue treated too insensitively, the family joined others in a less formalized group. Her mother has been home schooling her children and the family is very oriented to the harmony of nature and human condition, without losing their sense of the need for well-thought-out responses to community needs. AS was present at the home birth of her younger brother and the entire family is closely attentive to each other's needs, without insistence on remaining aloof from the world around them. AS's older brother, now 6 years of age, who had come along to her assessment session with his mother and infant brother, approvingly remarked "Minds Alive* was the best preschool I ever attended; of course, I never went to any other but I know it was the best!"

Applying Gibson's Hallmarks of Human Behavior

Gibson points out that "there is no typical or standard moment of maturity; . . . we gain our understanding from change and becoming" (Gibson, 1994, p.71). Hallmarks or "fundamental properties of human behavior" give us "a way of studying the factors that interact in making them what they are. . .early or late." Applying these hallmarks to the behaviors we have seen in these young children seems an important informative process for the overall purpose of our study, that is, to extend our knowledge about how emerging giftedness might look in children from diverse family backgrounds.

Agency, or control, as Gibson describes, is manifested in "the detection of oneself as a potential agent and controller of observable external consequences. . ." leading to "knowledge of causal relations and a concept of oneself as agent" (Gibson, 1994, p.72). In our view, agency seems to give momentum to metacognition through individual realization that choices of strategy to act on the environment are available and can be fortuitous in their outcome. Agency may be observed in KW's use of specific exposure to demonstration materials on the caterpillar and cocoons and discussions in the classroom to formulate on her own a description of the silkworm's life cycle and to convey this information to classmates. Undoubtedly, KW's exceptional vocabulary, reflecting wide perceptual access and semantic manipulation of information from early years contributed to her ability to act on new information so effectively.

SH exhibits agency in her unguided, extensive exploration of the seashell's capabilities from sand table to water table. Although resulting in somewhat negative outcomes, DH's testing of reaction of others as he acquires an understanding of social consequences of social behaviors falls in this category just as directly as Gibson's example of infants' responses to the effect of their body movement eliciting movement of a suspended mobile. AL and BL, in their home playroom as they experiment with various materials to assemble inventive robots and vehicles display again this sense of agency. In numerous instances, they were observed to select and discard pieces until they arrived at locomotion for their toy, or a semblance of the toy that fit their current expectations of what it should look like and should be able to do as described in their own words to the observer.

The second hallmark Gibson describes is prospectivity, "the forward-looking character of behavior. Exploratory actions inform young perceiver-actors about their own effective properties in relation to present conditions, to make possible prospectivity, ensuring consummatory actions" (Gibson, 1994, p. 72). Prospectivity is seen in AS' response to her brother's sorrow and her caregiver role-playing, as she considers how she might more effectively alleviate that sorrow. In DH's watchfulness of the reactions of others in order to determine the potential effect of his own behaviors, for good or bad effect, but undoubtedly for acceptance, as if to establish that he can elicit acceptance in a school setting even when seemingly powerless in his home setting. He was quite effective on various occasions in shaping a warm appreciative response from specific teachers. While these examples focus on the social interactions or interpersonal intelligence, Gibson's sense of prospectivity certainly extends to the intellectual realm as well. We see prospectivity in AL's and BL's inventive activities with the recyclable materials box, or BL's entrepreneurial creation of an imaginary Caps for Sale project. Sh's seeming aloofness from the too common interactions of the preschool allowed her time and space to find a niche in which she could act out behaviors she found comforting, such as in the home center. Or, she could construct her own understanding of the complexity of water streams through the unusual shape of a sea shell. It was observed that when her exploratory space was "invaded" by another child imitating this action, that SH moved on to another activity. Prospectivity in KW's case seems most evident in her story creations as she plays with a word, sound, or event, but eventually takes her formative ideas to a logical conclusion.

When Gibson applies the hallmark of flexibility, she specifies the transfer of strategies from task to task, perhaps even including use of analogies. It is important to note here that Gibson emphasizes that flexibility leads to potentially greater variability and

selectivity. This kind of flexibility is quite evident in the numerous exploratory and play activities of each of the children described earlier. Explorations among these preschoolers inevitably led to related activities, such as KW's generalization on caterpillars, silkworms, and the process of metamorphosis in general, or in BL's generation of a "rainbow brontosaurus" to accommodate his love for color in art with his scientific interest in dinosaurs.

Communicative creativity, Gibson's fourth hallmark, is perhaps the hallmark of the MA* preschool setting as well, although also evident in the home setting of many of the children, including those not yet described in this report. Children expressed this creativity in many ways regarding the ideas they were constructing from lessons on math, including estimation of amounts of interesting materials (such as the number of bites to eat an ice cream bar, or how many marbles in a jar) and graphing and geometric patterning; to lessons on science, including insects to prehistoric animals to the physical demands of air transportation as experienced in large block play; to lessons involving the stories that they developed to encompass all of their activities. Communicative creativity was not limited to the rich linguistic descriptions and analogies they used to try to relate their mental constructions. It also extended to ideas they tried to communicate through easel and finger painting; guided dramatic play as they constructed their understanding of the dimensions of home building and acted out social interactions of species other than humans; use of the marvelous, playground oak tree and platform to create imaginative settings; and even the constructions made as they sawed and hammered blocks of wood together to serve as props for their various ventures.

Finally, we come to retrospectivity, "the backward-looking character of behavior. . . . .and ability to recode past events, and to take them to future anticipated ones" (Gibson, 1994, p. 75). Gibson first proposed that this hallmark may only become available as we grow old enough to weave together past events, but then adjusted it to include its early development and the adaptive nature of remembering in the early years of life. We would propose that exceptionally able young children, especially those with early advanced language development who have the advantage of being able to communicate so articulately early in life their memories of past events, may indeed exhibit the backward-looking character of their behavior. It also seems that this property of human behavior is integrally connected with agency, for how can individuals sense causal relations with themselves as agents of those sequences without retrospectivity. This may indeed be one of the most salient markers of gifted potential, that is, to be able from a very early age to hold in mind past events, relate them to current situations, and then project action based on the relevance of the connections. In fact, in the parent-provided information, this characteristic operating

in their children by their ability to relate earlier events to current happenings is one most often cited by parents in the anecdotal information they give. It may be that exploration of this characteristic would be especially effective in transcending our current lack of recognition of potential in particular racial groups. For example, memory appears to be one of the mental processes which researchers have reported Black children tend to fare best on in standardized IQ tests.

Nevertheless, as we associate Gibson's descriptions with our own hypotheses on emerging competency and intelligence, vivid examples of emerging retrospectivity can be cited for at least some of the children of this study. KW's vocabulary ability and her method when she was unable to specify the label of the object, of identifying objects by descriptions of their function as she had observed the object in some past experience is one example. While this strategy is evident in the linguistic development of children as a whole, the strategy was unusually productive for KW permitting her to accumulate early in her development a vast repertoire of applicable categorizations. Indeed, other linguistically able preschoolers were often observed to expand their vocabulary "reach", as well as evidence this application of past experience to solve new problems. KW further exhibited this characteristic in her access of remembered insect information to project to a new situation on silkworms, assembling the remembered information effectively enough to communicate articulately to the other children. AS used a somewhat different application of past experience to arrive at conclusions, somewhat through "back door" logic using analogies. In response to a simple question on what do you hear with, AS said "with stereophones. . . you can listen to music, dance," and added that she really likes to dance, all of these memories flowing forth and taking her beyond the mere act of ears as agents of hearing. D spite many of our other experiences with highly verbal Black children, SH and DU were not as verbal and consequently observance of retrospectivity was not as accessible in their case, even though we conjectured they were often constructing their responses based on remembered experiences. On the other hand, AL and BL who are so fluently verbal and articulate, yet whose pace of exploration and construction is so swift and complex as to make analysis too reductionistic, would seem to be applying in their mental constructions a consistent flow between past, present, and future. For example, BL greeted me at the door of his home with a newly constructed aircraft from a paper towel tube and fasteners; he described how he had seen one at the museum and how he had read about them in his books. He then talked about how this one could be made to fly if he could figure out how to attach the wings better---past, present and future encompassed in one short encounter.

We believe Gibson's comment on this fifth hallmark of human behavior is particularly relevant to our own position regarding the possibilities for recognizing emerging intelligence and competencies and the necessity of responding with appropriate environmental experiences in order to nurture gifted potential. Gibson states that we should look for the development of remembering to be adaptive. "Retrospectivity is as loaded with developmental change as prospectivity, and thus as potentially informative about the factors that interact in creating a never-finished, perceiving, acting thinking human being." (Gibson, 1994, p. 75) KW uses remembering to extend her knowledge of objects, AS to generate new connections with remembered activities, and BL to apply remembered information to solving social interaction problems. In each case, remembering becomes adaptive and competency is enhanced.

Integrating Observations and Theories

Much data (observations and performance results by individual children) have been gathered and remain to be categorized according to epistemological origins or the Shaklee system mentioned earlier. While each child observed showed tendencies for one of the epistemological origins to dominate their activities, evidence of behaviors from each origin---learner, doer, generator, motivational zest---was observed in almost all of these especially bright for age children As the results of an exploratory search seeking to observe the presence of such behaviors, this finding is of course not surprising. Longitudinal studies, if conducted, may however demonstrate stability in preference for a particular epistemological origin over the life span.

A preliminary unpublished study of fourth grade children's responses to ambiguous stimuli (Roberts & Haensly, 1980) and of creative productivity among adults (Haensly & Roberts, 1983) suggest that individuality in ways of knowing and doing often do predominate in the performance of many individuals. Superimposed on that individuality, however, is the ecosystem; Wallace and Gruber's studies of creative people at work (1989) emphasize the multiple systems or layers of variables provided by the physical setting, historical time, and sociocultural context all entering into the individual's equation for lesser or greater development of unique potential. Yet they found that outstanding creatively productive adults appear to develop early in life a network of enterprise in which goal-directed projects and tasks retain a cohesiveness of style over the life span.

Though the observations in this study are somewhat tentative in implication, they appear to support a number of important premises:

*Parental, familial and school expectations and provisions provide opportunities, boundaries, and limitations for the development of each child's potential.

*These same factors appear to facilitate specific interests that then lead to response competencies and, often, life-long pursuits.

*Whether nomothetic or idiographic approaches are applied in assessing gifted potential, we must recognize that the learning potentials of individual gifted students, especially young children, can not be simply captured by dependence on the relationship of their performance and test scores to group-derived data (Kanevsky, 1994).

*Luck, chance, and coincidence can not be excluded as forces vitally affecting development of potential through orchestrating unique opportunities at opportune moments, according to Tannenbaum (1985).

*Especially effective coping and interaction patterns, characteristic of some children, are patterns that give these children a special edge in obtaining help and resources needed to develop their potential (Werner, 1995).

*And finally, nurturant, attentive adults to affirm the child's effective social interaction and guide talent development (Werner, 1995) are essential, especially critical in the case of children with multiple risk factors.

As suggested by the maturational concept of canalization, all of these variables provide the bounds within which one's genetic potential can become realized. When behaviors capable of initiating emerging competencies, such as described in the children of this study, are overlooked, ignored, or thwarted in the identification or programming process of educational settings, the canal is reduced considerably. We maintain that nurturant opportunities, richly provided on an as needed or Vygotskian basis to each child, holding expectations without ceiling or cultural biases, ensure a channel of optimal width and shape for maximizing potential. Recognizing emerging abilities early in the child's life is essential if those opportunities are to enter the channel at the optimal time.

Note: *Minds Alive (@1987) refers to the name of this summer program adapted in June of 1987, Minds Alive: Children and Teachers.

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REFERENCES

Allport, G. (1937). Personality: A psychological interpretation. New York: Holt & Co.

Bagby, J., & Haensly, P.A. (1994, February). Developing cognitive style in young Chinese children living in America: A case study. Paper presented at the Annual Conference of the Southwestern Society for Research in Human Development, Austin, TX.

Brodzinsky, D.M. (1985). On the relationship between cognitive style and cognitive structures. In E. Neimark, R. DeLisi, & J. Newman (Eds.), Moderators of competence. (pp.147-174). Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Brown, A.L., & Reeve, R.A. (1987). Bandwidths of competence: The role of supportive contexts in learning and development. In L.S. Liben (Eds.), Development and learning: Conflict or congruence? Hillsdale, N.J.: Erlbaum.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: research perspectives, Developmental Psychology, 22, 723-42.

Coleman, L.J. (1994). Portfolio assessment: A key to indentifying hidden talents and empowering teachers of young children. Gifted Child Quarterly, 38(2), 65-69.

Copple, C., I. E. Siegel & R. Saunders. (1979). Educating the young thinker: classroom strategies for cognitive growth. Hillsdale, N.J.: Lawrence Erlbaum Associates.

Csikszentmihalyi, M., Rathunde, K. & Whalen, S. (1993). Talented teenagers. The roots of success and failure. New York, N.Y.: Cambridge University Press.

Gardner, H. (1983). Frames of mind: The theory of mutiple intelligences. New York: Basic Books.

Gibson, E.J. (1994). Has psychology a future? Psychological Science, 5(2), 69-76.

Haensly, P.A. (1992). Exceptional ability in preschoolers reflected through emerging cognitive style. Paper presented at the Esther Katz Rosen APA Symposium, Lawrence, Kansas, Feb. 28, 1992. Also at the 10th World Congress on Gifted and Talented Education, Toronto CANADA, August 1993. In review for publication in World Congress yearbook.

Haensly, P.A. (1994). Development of giftedness among siblings: A case study of differences and familial microsystems. Paper presented a the 10th World Congress on Gifted and Talented Education, Toronto CANADA, August 1993. ERIC Document Reproducation Service No. ED 362 319. In review for publication.

Haensly, P.A., & Roberts, N.M. (1983). The professional productive process and its implications for gifted studies. Gifted Child Quarterly, 27 (1), 9-12.

Haensly, P.A., Wehrly, A., & Ash, M. (1991). Functional behavior among Head Start children: Looking at what works. Proceedings for the "New Directions in Child and

Family Research: Shaping Head Start in the 90's" Conference (June 1991, Washington D.C.) (pp. 118-121). New York: ACYF U.S. Dept of Health and Human Services.

Kanevsky, L. (1994). Gifted children and the learning process: Insight on both from the research. Presentation at the 1994 Annual Conference of the National Association for Gifted Children, Salt Lake City, Utah.

Mischel, W. (1979). On the interface of cognition and personality: Beyond the person-situation debate. American Psychologist, 34, 740-754.

Neimark, E.D. (1985). Moderators of competence: Challenges to the universality of Piagetian theory. In Neimark, E.D., DeLisi, R., & Newman, J.L. (Eds.), Moderators of competence. Hillsdale, N.J.: Lawrence Erlbaum Association.

Resnick, L.B. (1991). Shared cognition: Thinking as social practice. In L.B. Resnick, J.M. Levien & S.D. Teasley (Eds.). Perspectives on socially shared cognition (pp. 1-20). Washington D.C.: American Psychological Association.

Roberts, N.M., & Haensly, P.A. (1980, October). Developmental patterns in the evolvement of individual creative styles. Paper presented at the Annual Conference of the National Association for Gifted Children, Minneapolis, MN.

Rogff, B. (1990). Apprenticeship in thinking. Cognitive development in social context. New York: Oxford University Press.

Shaklee, Beverly. (1993). Preliminary findings of the Early Assessment for Exceptional Potential project. Roeper Review, 16(2), 105-109.

Shaklee, B. & Rohrer, J. (1992). Early assessment of exceptional potential: Looking at young children. Illinois Council of the Gifted Journal, 15(2), 134-144.

Sigel, I. E. (1991). Representational competence: Another type? In M. Chandler & M. Chapman (Eds.), Criteria for competence: Controversies in the conceptualization and assessment of children's ability (pp. 189-205). Hillsdale, N.J.: L. Erlbaum Associates.

Sternberg, R. (1977). Intelligence, information processing and analogical reasoning: The componential analysis of human abilities. Hillsdale, N.J.: Erlbaum.

Sroufe, L.A., Egeland, B., & Kreutzer, T. (1990). The fate of early experience following developmental change: Longitudinal approaches to individual adaptation in childhood. Child Development, 61, 1363-1373.

Tannenbaum, A. J. (1991). The social psychology of giftedness. In N. Colangelo & G. A. Davis (Eds.), Handbook of gifted education (pp. 27-44). Boston: Allyn and Bacon.

Wallace, D.B. & Gruber, H.E. (Eds.). (1989). Creative people at work. New York: Oxford Press.

Werner, E.E. (1995). Resilience in development. Current Directions in Psychological Science, 4 (3), 81-85.

White, B.L. (1983). The orgins of competence. In B. Shore, F. Gagne, S. Larivee, R.H. Tali, & R.E. Temblay (Eds). Face to face with giftedness. First Yearbook of the World Council for Gifted and Talented Children (pp. 3-26). New York: Trillium Press.